

CLAIMS

What is claimed is:

1. A method for allocating timeslots in a time-slotted communication system to support transmission of a plurality of codes in a code set; the method comprising:
generating a plurality of slot sequences utilizing at least one selectively weighted value, each slot sequence comprising a plurality of timeslots;
calculating a figure of merit for each timeslot, the figure of merit being based, at least in part, upon said selectively weighted value;
arranging said plurality of timeslots within each said slot sequence in order of a decreasing figure of merit to provide an arranged slot sequence; and
comparing each of said plurality of codes within said code set to each said arranged slot sequence to determine whether said arranged slot sequence can support said code set and, if so, identifying the slot sequence as an assignment solution.
2. The method of claim 1, further comprising calculating a weighted interference value for each assignment solution.
3. The method of claim 2, further comprising selecting the assignment solution with the lowest weighted interference as the optimal solution.
4. The method of claim 1, wherein said at least one selectively weighted value comprises a weighted parameter related to interference signal code power (ISCP) α and a weight parameter related to the number of resource units (RUs) that can be used in a particular timeslot.
5. The method of claim 1, wherein the plurality of codes within said code set have a plurality of different spreading factors.
6. The method of claim 5, wherein said comparing step further comprises:

selecting the code within the code set with the smallest spreading factor;
selecting a timeslot in the arranged slot sequence;
determining whether there is a code available in the selected timeslot to support the smallest spreading factor and, if so, identifying the code as an available code.

7. The method of claim 6, wherein said comparing step further comprises:
estimating the noise rise and transmit power of the selected timeslot if the available code is assigned to the selected timeslot; and
determining if noise rise and transmit power in the selected timeslot are excessive.

8. The method of claim 7, wherein said comparing step further comprises:
updating the interference in the selected timeslot if the noise rise and transmit power in the selected timeslot are not excessive.

9. The method of claim 7, wherein said comparing step further comprises:
updating the slot sequence by deleting timeslots that cannot be used because of the use of the selected timeslot if the noise rise and transmit power in the selected timeslot are not excessive.